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NEW AND RARE FISHES FROM  
SOUTHERN CALIFORNIA

BY

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(Contribution from the Laboratory of the Marine Biological Association of San Diego)

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The following report is of a collection of fishes made in the vicinity of La Jolla and San Diego, California, by the Marine Biological Association of San Diego at various times since 1907. The collection also includes a few specimens taken at Cerros Island, Lower California, in the summer of 1908. Only that part of the collection that is of interest on account of hitherto unrecorded characters or distribution is here included. When locality is not specified specimens are from the general vicinity of San Diego.

The accompanying drawings are by Chloe Lesley Starks.

***Etrumeus micropus*** Schlegel

We may note here the receipt at Stanford University of two specimens of this species from San Diego. They were sent by Mr. A. V. Pearson, who states the species to be common. From the fact that it has not been seen by any collector since it was described twenty years ago by Rosa Smith Eigenmann under the name of *Perkinsia orthonops* (*American Naturalist*, 1891, p. 153), it is remarkable that it should be at any time common, especially in light of the many collections that have been made

in the vicinity. It is probably a migratory species common at certain more or less infrequent intervals. It is a common species in Japan and in the Hawaiian Islands.

***Polydactylus approximans*** (Lay and Bennett)

A specimen a foot in length, preserved by the San Diego Chamber of Commerce, is included in the collection. This is the first record of the occurrence of this species north of the Gulf of California. Starks and Morris in their "Marine Fishes of Southern California" (*Univ. Calif. Publ. Zool.*, vol. 3, no. 11, p. 188, 1907) recorded *Polydactylus opercularis* from an oil painting made by Mrs. Andrews, of San Diego, of a fish she had procured in the local market. The painting may have been of the species now at hand, or it is possible that both species occur on our coast.

***Lepidopus xantusi*** Goode and Bean

The second adult specimen known is in the collection. It is of the same size as, and entirely agrees with the specimen described by Jordan and Starks (*Proc. U. S. Nat. Mus.*, 32, p. 70, 1907).

***Abeona minima*** (Gibbons)

In a young specimen dark vertical bars are very distinct. An anterior one commences as a blotch at the first ray of the soft dorsal and extends vertically downward two-thirds of the height of the body. A posterior one extends only slightly past the black band along the axis of the body. In adult specimens in alcohol these dark cross bars are quite indistinct.

***Halichoeres semicinctus*** (Ayres)

A single female specimen, 7 inches in length, from La Jolla, shows color markings not before described. Following the third longitudinal row of scales from the dorsal base is a row of round black spots, one on the base of each scale. These are frequently, but not regularly, duplicated below thus making an irregular double row. It is interrupted on the caudal peduncle for 2 or 3

scales, but at the base of the caudal it is represented by two pairs of spots. A less definite row follows the row of scales at the base of the dorsal, and above the pectoral are a few scattered spots.

**Sebastolobus altivelis** Gilbert

A specimen taken in the trawl at a depth of 413 fathoms. In this specimen no scales can be detected on the branchiostegal rays or membrane.

**Sebastodes diploproa** (Gilbert)

One specimen taken off La Jolla in a depth of 160 fathoms. It has been directly compared with one of the cotypes with which it agrees in all of its characters.

**Orthonopias**, new genus

Top of head between eyes covered with fine etenoid scales; a row of slender cirri back from each eye; the entire course of lateral line with a series of enlarged etenoid scales; sides of back with a broad band of fine scales, leaving a narrow naked strip above lateral line and another below base of dorsal; villiform teeth on jaws, vomer, and palatines; four preopercular spines; the upper one trifold; dorsals separate; gill membranes united, free from isthmus; no slit behind last gill; ventrals 1, 3.

This genus is most closely related to *Axyrius* and *Astrolytes*. It differs from *Axyrius* in the trifold preopercular spine; from *Astrolytes* in the very much wider band of scales between the lateral line and the base of the dorsal, and in the armed lateral line.

**Orthonopias triacis** Starks and Mann, new species

Head  $3\frac{3}{4}$  in length of body to base of caudal; depth 4. Eye  $3\frac{1}{4}$  in length of head; maxillary  $2\frac{3}{4}$ . Dorsal IX-17; anal 12.

Profile very steep from tip of snout to tip of nasal spines. Lower jaw included; maxillary reaching to vertical from middle of eye. Villiform teeth on jaws, vomer, and palatines. Eye set high in head, standing a little above profile; its diameter almost

as great as length of snout. Interorbital space a little less than half as wide as diameter of eye. A narrow depression running midway between the eyes from a point opposite the posterior border of the eye to a depression behind the nasal spines. Upper preopercular spine slightly over half as long as diameter of eye; trifold; its upper two forks strong, its lower fork shorter, close to middle fork, and little separated from it; upper fork directed upwards and backwards; lower forks nearly straight backwards.

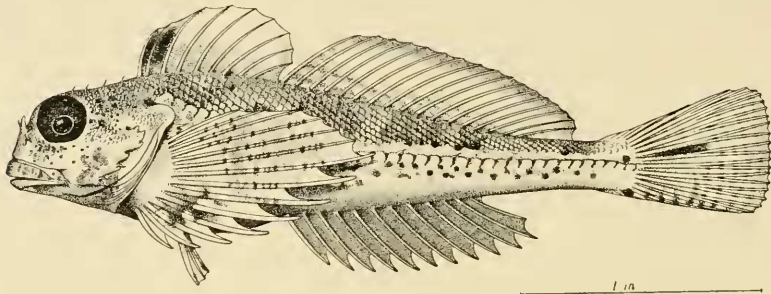


Fig. 1. *Orthonopias triacis* Starks and Mann.

Second and third preopercular spines subequal, and not half so long as first; fourth spine short, at lower angle of preoperculum. Nasal spines prominent; sharp; nearly as long as diameter of pupil; reaching to a level with upper edge of pupil. Top of head with cirri among the scales, one at each nostril; a line of four extending backwards from each eye; one back of each eye opposite the second of this line; two at tip of maxillary; two at lower angle of preopercle; one at angle of opercle.

Fine ctenoid scales on interorbital space which become larger and more separated on the occiput. Snout and the space below preopercular stay naked. Preopercle above level of upper spine, and opercle with small ctenoid scales. Lateral line with a series of 38 plate-like scales; their upper posterior edges free and dentate. A naked area just above lateral line about as wide as lateral line scales, and a similar narrow naked area at base of dorsal; between these two a band of rough scales 5 or 6 scales wide below origin of soft dorsal counting vertically; counting the series running down and back it is from 10 to 12 scales wide; the band

is composed of 36 oblique series counting longitudinally. Scales of posterior part of band growing smaller and irregularly arranged; the band connecting with its fellow of the opposite side on caudal peduncle. Body below lateral line naked.

Dorsal spines slender; weak; those from the 4th to the 7th longest. Dorsals not connected; first ray of soft dorsal over twice the height of last spine; anterior rays about equal; posterior growing only slightly shorter; the highest ray twice the diameter of eye. Pectoral large; contained  $2\frac{7}{8}$  times in body; reaching to opposite base of 6th or 7th dorsal ray. Ventrals reaching slightly past vent; first ray of anal beneath 3rd dorsal ray; last ray beneath 14th dorsal ray; anal rays nearly equal in length throughout length of fin; caudal broadly rounded behind.

Color in alcohol light brown; a dark blotch below the anterior part of spinous dorsal; a small blotch below posterior part; three blotches below soft dorsal; and one on caudal peduncle. Sides below lateral line with irregular dark blotches on anterior half of body, and with smaller spots on posterior half. A black blotch on front of spinous dorsal; soft dorsal narrowly margined with brown, and with some narrow dark oblique bars on its base; membrane of anal uniformly brown; the rays somewhat lighter; caudal with a longitudinal streak through its middle; pectorals brown with a darker blotch at base; ventrals colorless.

The type and only specimen of this species is a trifle over three inches in length, and was taken at Cortez Banks in a trawl at a depth of from 11 to 16 fathoms.

#### **Rusulus**, new genus

Head naked and with numerous large pores and several small cirri; no enlarged external plates along lateral line; anterior pores of lateral line with cirri; sides of body covered sparsely with one, two, and three-pointed scales or spinules which extend below lateral line above anal region; teeth on jaws, vomer, and palatines; upper preopercular spine bifid; lower spines but little developed; dorsals separate, or contiguous at extreme base only; gill membranes united, and free from isthmus; no slit behind last gill arch; ventrals with one spine and three rays.

This genus is most closely related to *Clinocottus* from which it differs in the larger spinules on the body, the absence of cirri on the back and at the base of the dorsals, and in having fewer and smaller cirri on the top of the head.

***Rusulus saburrae*** Starks and Mann, new species

Head  $3\frac{1}{8}$  in length of body to base of caudal; depth 4. Eye 4 in head; maxillary 3; highest dorsal spine  $2\frac{3}{4}$ ; length of ventral  $1\frac{4}{5}$ ; pectoral  $1\frac{1}{5}$ ; caudal  $1\frac{1}{5}$ . Dorsal IX, 17; anal 14; pores in lateral line 38.

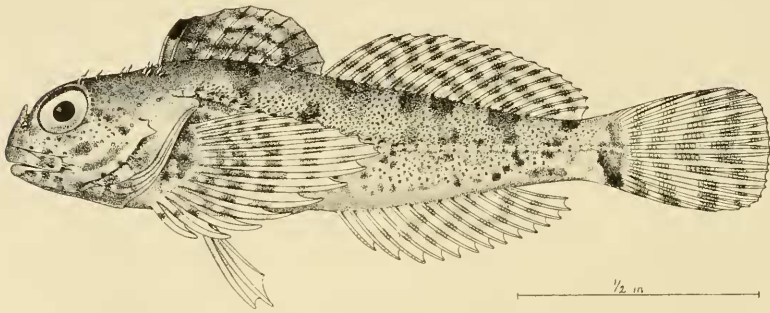


Fig. 2. *Rusulus saburrae*, type.

Body short, moderately thick, heaviest at shoulders. Profile of head precipitous anteriorly; slightly concave at occiput; lower profile gently curved from chin to ventrals. Lower jaw included; maxillary reaching to below center of eye; fine villiform teeth on jaws, vomer, and palatines. Interorbital space shallowly concave; equal to half diameter of eye. Eye on level with upper margin of head; its diameter a little less than length of snout. Nasal spines blunt; distance from their tip to mouth a little greater than length of eye. Upper preopercular spine bifid; its superior spine the shorter, directed upward and backward; the inferior directed backward and slightly upward; two slight angles on lower edge of preopercle represent the usual lower spines. Head entirely naked and with many large pores behind and below eye. Three or four cirri on the margin of the preoperculum, and a row behind each eye on top of head.

Lateral line curving downward to tip of pectoral where it is slightly angulated, and thence runs straight to caudal; the part anterior to angle with cirri at each pore. Small scattered one, two, and three-pointed scales on side of body, becoming more numerous posteriorly and opposite soft dorsal extending below the lateral line.

Dorsal fins separate, or only in contact at extreme base. Third and fourth dorsal spines the longest; first dorsal ray  $2\frac{1}{2}$  times the length of the last dorsal spine; pectoral reaching to base of fifth dorsal ray; ventrals reaching a fourth of their length past vent; first ray of anal beneath third ray of dorsal.

Color in alcohol brown, belly lighter; back, sides, and head everywhere with small dark dots arranged in patches; a narrow band across occiput; back with 5 interrupted bands, the last at tip of last ray; a row of irregular blotches below lateral line; dorsals, pectoral, and anal with dark, oblique, dusky bands; ventrals without color.

The type and only specimen of this species is  $1\frac{5}{8}$  inches in length and was taken in a dredge opposite Ballast Point, at the mouth of San Diego Bay, in a depth of 10 fathoms.

#### ***Icelinus quadriseriatus*** (Lockington)

Many specimens were taken near Cerros Island, Lower California, in 40 fathoms of water. Some of them have the branchiostegal membrane black, the ventrals dusky, and the anal very dark, appearing black when the fin is closed. Others have these parts entirely colorless. All gradations between these extremes are represented. Specimens with the lower parts dark may have the pectoral variously colored from very dark to almost entirely colorless, but the pectoral is always light when the other parts are.

#### ***Tarandichthys cavifrons*** (Gilbert)

Several specimens of this species were taken at a depth of from 46 to 50 fathoms about San Diego.

#### ***Xeneretmus triacanthus*** (Gilbert)

Two specimens were taken in water from 50 to 100 fathoms deep off La Jolla. It has not before been taken in southern California.

This species may be readily known from *X. latifrons*, its nearest relative, by the possession of 2 or 3 buckler-like plates below the suborbital ridge (where it is naked in the latter species), by its having 6 rather than 7 or 8 anal rays, and by its having a free fold posteriorly on the branchiostegal membrane. But it is most readily known by the absence of a black margin to the spinous dorsal posteriorly. In *X. latifrons* a black margin is always present and conspicuous.

**Rhinogobius nicholsii** (Bean)

A specimen taken in 50 fathoms of water.

**Porichthys notatus** Girard

The collection contains specimens taken at various depths from very shallow water to 40 fathoms.

**Cryptotrema corallinum** Gilbert

A single specimen,  $2\frac{1}{4}$  inches in length, taken at a depth of 50 fathoms. While the scales of the front part of the lateral line are very prominent and slightly larger than those at each side of them they are not nearly so much larger in proportion as in larger specimens.

**Chilara taylori** (Girard)

A specimen 7 inches in length taken off Cerros Island in 40 fathoms of water. It does not show the usual spots, being uniformly light dusky above, shading to lighter on sides.

**Maynea californica** Gilbert. (MS.)

Three specimens of this species without data, other than locality, are in the collection from off La Jolla. The species is known only from the type (from off San Nicholas Island) and unpublished description by Dr. Gilbert.

Two species from the north temperate Pacific have been referred to this genus, but are now considered under the genus *Bothrocara*, (*B. pusilla* [Bean], and *B. mollis* Bean). The present species, however, differs from the type of the genus



*Maynea* (*M. patagonica* Cunningham, from the Straits of Magellan) only in specific characters, and it is the only one of the genus known from northern waters. *Maynea* differs from *Bothrocara* in having the flesh firm, the skin thick, the head not cavernous, the eyes small, and the body tapering to a blunt point with the dorsal and ventral outlines of the body approaching each other in convex curves. *Bothrocara* has the body loosely organized and covered with thin, lax skin, the head soft and cavernous, the eyes very large, and the body tapering to a fine point with the ventral and dorsal outlines approaching each other in straight lines.

*Maynea californica* resembles the picture of *M. patagonica* that was published by Dr. Gunther (*Proc. Zool. Soc. Lond.* 1881, pl. II), but differs in having the front of the dorsal placed much more posteriorly, and in the absence of cross bars in the young.

The largest of the specimens at hand is a little over five inches in length, or nearly as large as the type; the others are considerably smaller. They differ from the type in having the maxillary a little shorter, the interorbital space a little narrower, though the width of the interorbital bone is similar, and in being darker in color.

The following description is of the largest specimen. The smaller ones agree with it in all essential respects.

Length of head  $7\frac{1}{4}$  in length of body to base of caudal; depth  $12\frac{1}{4}$ . Eye 6 in head; maxillary  $3\frac{1}{2}$ ; snout 4.

Snout blunt and rounded, very slightly overhanging mouth in large specimen, even with mouth in small ones. Rather coarse teeth in bands on jaws, vomer, and palatines. Anterior nostril in a short tube extending forward a little beyond the snout; posterior nostril a large pore scarcely larger than various other pores on head. A line of pores around lower and posterior part of eye; a line of four pores running straight back from eye and connected with its fellow of the opposite side by a transverse line of three pores at nape. The line from eye continued on side of body by a few very fine pores which do not reach as far back as the tip of the pectoral fin. A line of pores present around edge of preopercle and continued on mandible anteriorly to its point.

Interorbital space flat and without a longitudinal channel; its width a little less than eye. Maxillary reaching a very little past front of eye. Gill slit reaching slightly below base of pectoral; its length equal to distance from tip of snout to middle of eye.

Pectoral rather broad and rounded; its width at its base contained 5 times in head; its length nearly 2. Origin of dorsal a distance behind nape equal to the distance from nape to middle of eye; its distance behind base of pectoral equal to length of snout. Origin of dorsal from tip of snout a distance contained in entire length to base of caudal  $5\frac{1}{2}$  times. Origin of anal from tip of snout  $2\frac{3}{5}$  times in length. Dorsal and anal low, and continuous around tail without a notch. The length of the anterior dorsal rays barely exceed the length of the eye; the posterior rays a little longer, at beginning of posterior fourth of fin  $1\frac{3}{5}$  times longer than eye. Ventrals entirely absent. Body covered with scattered imbedded scales extending onto bases of dorsal and anal fins.

Color in alcohol dark bluish-brown, darker on back and top of head, changing to light dusky below. The sides of body everywhere with small light spots formed by the scales. Pectoral colorless; dorsal and anal with an inconspicuous lighter border.

#### ***Citharichthys fragilis* Gilbert**

A number of small specimens of this species were taken off Cerros Island at a depth of 40 fathoms in company with *Citharichthys xanthostigmus*. They have been compared directly with the type specimens and found to agree in all essential characters. The scales in the lateral line vary from 44 to 49 in number, and the rays in the dorsal from 80 to 86. The species has been known heretofore only from the Gulf of California.

#### ***Citharichthys stigmaeus* Jordan and Gilbert**

This species is represented in the collection by a large number of specimens, and though reported rare is evidently common off southern California.

The following key includes all of the west coast species of *Citharichthys* known outside of the tropics.

- A. 9 to 11 gill rakers on anterior limb of arch.
  - B. Ventrals longer than head. *xanthostigmus*.
  - BB. Ventrals shorter than head. *stigmaeus*.
- AA. 16 to 18 gill rakers on anterior limb of arch.
  - C. Scales from 65 to 70; dorsal 95. *sordidus*.
  - CC. Scales from 46 to 51; dorsal 80 to 87. *fragilis*.

### ***Symphurus atricauda*** (Jordan and Gilbert)

This rather common southern California species is represented in the collection by a single specimen. A specimen taken some years ago in the San Francisco market by Dr. Gilbert, and another recently at Santa Cruz increases the northern range of this species. It has hitherto not been recorded north of Point Conception.

From *Symphurus leei*, with which this species intermingles in tropical waters, *Symphurus atricauda* may be distinguished by its finer scales, having from 105 to 108 transverse series rather than from 75 to 90, and in having a smaller head, which is contained  $4\frac{1}{5}$  to  $5\frac{1}{3}$  times in the length of the body rather than  $4\frac{1}{4}$  times.

The following color-description was taken from a fresh specimen. The eyed side is greyish-brown with a series of 7 or 8 dark brown cross bars at the bases of the dorsal and anal fins, but fading out at the middle of the body. These become gradually darker posteriorly, and are brownish-black on the tail. The fin membranes are broadly edged with pale orange. The blind side is colorless except the fins of the caudal region, which grow gradually black posteriorly, and the visceral region, which is a deep pink.

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